

DAFTAR PUSTAKA

- Aiken, L. R. (1985). Three coefficients for analyzing the reliability and validity of ratings. *Educational and Psychological Measurement*, 45(1), 131-142. doi: 10.1177/0013164485451012.
- Akani, O. (2017). Identification of the areas of students difficulties in chemistry curriculum at the secondary school level. *International Journal of Emerging Trends in Science and Technology*, 4(4), 5071-5077. doi:10.18535/ijetst/v4i4.04.
- Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing; a revision of bloom's taxonomy of educational objectives*. New York: Addison Wesley Longman.
- Aubusson, P. J., Harrison, A. G., & Ritchie, M. R. (2006). *Metaphor and analogy*, Netherlands: Springer
- Balisteri, S., Giacomo, F. T. D., Noisette, I., & Ptak, T. (2012). *Global education: connections, concepts, and careers*. New York: College Board.
- Bond, T. G., & Fox, C. M. (2007). *Applying the Rasch model: fundamental measurement in the human science*. New Jersey: Lawrence Erlbaum Associates.
- Booena, W. J., Staver, J. R., & Yale, M. S. (2014). *Rasch analysis in the human sciences*. Dordrecht: Springer
- Brady, J. E. (2002). *Kimia universitas asas & struktur*. Tangerang: Binapura Aksara.
- Brookhart, S. M. (2010). *How to assess higher –order thinking skills in your classroom*. USA: Alexandria Virginia.
- Calik, M., Ayas, A., & Ebenezer, J. V. (2009). Analogical for understanding solution rates: students' conceptual change and chemical explanation. *Research in Science & Technological Education*, 27(3), 283-308. doi: 10.1080/02635140903162611
- Carter, C. S., & Brickhouse, N. W. (1989). What makes chemistry difficult? Alternate perceptions. *Journal of Chemical Education*, 66(3), 223-225. doi: 10.1021/ed066p223.
- Chang, R. (2003). *Kimia dasar: konsep-konsep inti*. Jakarta: Erlangga.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Amerika: Lawrence Erlbaum Associates

- Demircioglu, G., Demircioglu, H., & Yadigaroglu, M. (2013). An investigation of chemistry teachers' understanding of chemical equilibrium. *International Journal on New Trends in Education and Their Implications*, 4(2), 192-199. Retrieved from <http://ijonte.org/FileUpload/ks63207/File/19.demircioglu.pdf>.
- Didis, N. (2015). The analysis of analogy use in the teaching of introductory quantum theory. *Chemistry Education Research and Practice*, 16(2), 335-376. doi: 10.1039/c5rp00011d.
- Ebbing, D. D., & Gammon, S. D. (2007). *General chemistry*. New York: Charles Hartford.
- Faull, G. A. (2016). Critical thinking: practical strategies for teaching and learning. *The Journal of Adventist Education*, 78(3), 28-33. Retrieved from <http://circle.adventist.org/files/jae/en/jae201678032806.pdf>
- Fisher, W. P. Jr. (2007). Rating scale instrument quality criteria. *Rasch Measurement Transaction*, 21(1), 1087-1096. Retrieved from <https://www.rasch.org/rmt/rmt211m.htm>.
- Ghani, I. B., Ibrahim, N. H., Yahaya, N. A., & Surif, J. (2017). Enhancing students' HOTS in laboratory educational activity by using concept map as an alternative assessment tool. *Chemistry Education Research and Practice*, 18(4), 849-874. doi: 10.1039/C7RP00120G.
- Hambleton, R. K., & Swaminathan, H. (1985). *Item respon theory and applications*. Boston: Nijhoff.
- Harrison, A. G., & Coll, R. K. (2008). *Using analogies in middle and secondary science classrooms*. California: Corwin Press.
- Harrison, A. G., & Treagust, D. F. (1993). Teaching with analogies: a case study in grade-10 optics. *Journal of Research in Science Teaching*, 30(10), 1291-1307. Retrieved from <https://tccl.arcc.albany.edu/knilt/images/a/a1/File.Harrison.pdf>
- Harrison, A. G., & Treagust, D. F. (2006). *Teaching and learning with analogies: friend or foe?* In Aubusson, J. P., Harrison, A. G., & Ritchie, S. M. (Eds.). *Metaphor and analogy in Science Education*. Netherlands: Springer.
- Heong, Y. M., Widad., Jailani., Kiong, T. T., Razali., & Mimi. (2011). The level of marzano higher order thinking skills among technical education students. *International Journal of Social Science and Humanity*, 1(2), 121-125. Retrieved from <http://ijssh.org/papers/20-H009.pdf>.
- Huck, S. W. (2012). *Reading statistic and research*. Boston: Pearson.

- Hugerat, M., & Kortam, N. (2014). Improving higher order thinking skills among freshman by teaching science through inquiry. *Eurasia Journal of Mathematics, Science & Technology Education*, 10(5), 447-454. doi: 10.12973/eurasia.2014.1107a
- Ibrahim, F. (2018) *Pengembangan media virtual chemistry laboratory (VICH-LAB) berbasis HTML5 terintegrasi hybrid learning materi asam basa untuk meningkatkan self-efficacy dan prestasi belajar kognitif peserta didik SMA*. Tesis, tidak diterbitkan, PPs Universitas Negeri Yogyakarta, Yogyakarta.
- Johnstone, A. H. (1993). The development of chemistry teaching. *Symposium on Revolution and Evolution in Chemical Education*, 70(9), 701-705. doi: 10.1021/ed070p701.
- Johnstone, A. H. (2000). Teaching of chemistry-logical or psychological?. *Chemistry Education: Research and Practice in Europe*, 1(1), 9-15. Retrieved from http://www.chem.uoi.gr/cerp/2000_January/pdf/056johnstonef.pdf.
- Kemendikbud. (2016). *Peraturan menteri pendidikan dan kebudayaan Nomor 22 Tahun 2016 tentang Standar Proses Pendidikan Dasar dan Menengah*. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Koran Merapi. (21 April 2018). Soal UN 'HOTS' dibuat lebih sulit.
- Kusuma, M. D., Rosidin, U., Abdurrahman., & Suyatna, A. (2017). The development of higher order thinking skills (HOTS) instrument assessment in physics study. *International Organization of Scintific Research-Journal of Research & Method in Education*, 7(1), 26-32. doi: 10.9790/7388-070105263
- Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory Into Practice*, 32(3), 131-137. doi: 10.1080/00405849309543588.
- McGregor, D. (2007). *Developing thinking developing learning a guide to thinking skils in education*. New York: Open University Press
- Muniz, M. N., & Hoyo, M. T. O. (2014). On the use of analogy to connect core physical and chemical concepts to those at the nanaoscale. *Chemistry Education Reseach and Practice*, 15(4), 807-823. doi: 10.1039/C4RP00097H
- Mustu, O. E., & Ozkan, E. B. (2017). The uses of analogy for the determination of pre-service science techers' cognitive structures about the concept of atom. *European Journal of Education Studies*, 3(10), 583-594. doi: 10.5281/zenodo.1038992

- Nurcahyo, F. A. (2016). Aplikasi IRT dalam Analisis Aitem Tes Kognitif. *Buletin Psikologi*, 24 (2), 64-75. doi: 10.22146/buletinpsikologi.25218
- Ollino, M., Aldoney J., Dominguez, A. M., & Merino, C. (2018). A new multimedia application for teaching and learning chemical equilibrium. *Chemistry Education Reseach and Practice*, 19(1), 364-374. doi: 10.1039/c7rp00113d.
- Orgill, M., & Bodner, G. (2004). What research tells us about using analogies to teach chemistry. *Chemistry Education Research and Practice*, 5(1), 15-32. doi: 10.1039/B3RP90028B
- Orgill, M., Bussey, T. J., & Bodner, G. M. (2015). Biochemistry instructors' perception of analogies and their classroom use. *Chemistry Education Research and Practice*, 16(4), 731-746. doi: 10.1039/c4rp00256c
- Orvis, J., Sturges, D., Rhodes, S., White, K. J., Maurer, T. W., & Landge, S. M. (2016). A mailman analogy: retaining student learning gains in alkane nomenclature. *Journal of Chemical Education*, 93(5), 879-885. doi: 10.1021/acs.jchemed.5b00551
- Ozmen, H. (2008). Determination of students' alternative conceptions about chemical equilibrium: a review of research and the case of Turkey. *Chemistry Education Research and Practice*, 9(3), 225-233. doi: 10.1039/b812411f.
- Pallant, J. (2007). *SPSS survival manual*. Australia: Open University Press
- Raviolo, A., & Garritz, A. (2009). Analogies in the teaching of chemical equilibrium: a synthesis/analysis of the literature. *Chemistry Education Research and Practice*, 10(1), 5-13. doi: [10.1039/B901455C](https://doi.org/10.1039/B901455C)
- Razali, N. M., & Wah. Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Liliefors and Anderson-Draling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21-33. Retrieved from <https://www.nrc.gov/docs/ML1714/ML17143A100.pdf>
- Samara, N. A. H. (2016). Effectiveness of analogy instructional strategy on undergraduate student's acquisition of organic chemistry concepts in Mutah University, Jordan. *Journal of Educational and Practice*, 7(8), 70-74. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1095360.pdf>
- Sendur, G., Toprak, M., & Pekmez, E. S. (2010). An analysis of analogies used in secondary chemistry textbooks. *ScienceDirect*, 3(2011), 307-311. doi: 10.1016/j.procs.2010.12.052

- Shahani, V. M., & Jenkinson, J. (2016). The efficacy of interactive analogical models in the instruction of bond energy curves in undergraduate chemistry. *Chemistry Education Research and Practice*, 17(2), 417-428. doi: 10.1039/C5RP00194C
- Sumintono, B & Widhiarso, W. (2015). *Aplikasi pemodelan Rasch pada asesmen pendidikan*. Bandung: Trim Komunika
- Supasorn, S., & Promarak, V. (2015). Implementation of 5E inquiry incorporated with analogy learning approach to enhance conceptual understanding of chemical reaction rate for grade 11 student. *Chemistry Education Research and Practice*, 16(1), 121-132. doi: 10.1039/c4rp00190.
- Sya'diyah, H. (2017). Pengembangan instrument penilaian kinerja berbasis pendekatan saintifik untuk mengukur keterampilan proses sains dan practical skills peserta didik SMA/MA kelas XI pada pembelajaran kimia materi asam basa. *Tesis*, tidak diterbitkan, PPs Universitas Negeri Yogyakarta, Yogyakarta.
- Tobin, K., Capie, W., & Betencourt, A. 1988. Active teaching for higher cognitive learning in science, *International Journal of Science Education*, 10(1), 17-27. doi: 10.1080/0950069880100103
- Tribun Jogja. (10 Juli 2018). Guru dituntut kreatif dalam kurikulum 2013. Retrieved from <http://jogja.tribunnews.com/2018/07/10/guru-dituntut-kreatif-dalam-kurikulum-2013>.
- Vorapongsathorn, T., Taejaroenkul, S., & Viwatwongkasem, C. (2004). A comparison of type I error and power of Bartlett's test, Levene test and Cronbach's test under violation of assumptions. *Songklanakarin Journal Science and Technology*, 26(4), 537-547. Retrieved from <http://rdo.psu.ac.th/sjstweb/journal/26-4/11-error-of-assumption.pdf>.
- Widana, I. W. (2017). Higher order thinking skills assessment (HOTS). *Journal of Indonesian Student Assesment and Esucation*, 3(1), 32-44. Retrieved from <http://journal.unj.ac.id/unj/index.php/jisae/article/download/4859/3601/>
- Wisudawati, A. W. (2017). Instrumen tes islam kimia (ITIK) untuk mendeteksi pemahaman level mikroskopis materi air. *Journal of Chemistry Education Research*, 1(1), 1-11. Retrieved from <https://journal.unesa.ac.id/index.php/jcer/article/view/1927/1316>.
- Yen, S. Y., & Halili, S.H. (2015). Effective teaching of higher order thinking (HOT) in education. *The online Journal of Distance Education and e-Learning*, 3(2), 41-47. Retrieved from <https://tojdel.net/journals/tojdel/articles/v03i02/v03i02-04.pdf>

Zahediasl, S., & Ghasemi, A. (2012). Normality tests for statistical analysis: a guide for non-statisticians. *International Journal of Endocrinology Metabolism*, 10(2), 486-4889. doi: 10.5812/ijem.3505.